

AMENDMENTS TO THE CLAIMS

Claims 1-46 (Canceled).

47. (Original) A curable powder coating composition comprising a solid particulate film-forming mixture of the following components:

(1) a polymer containing reactive functional groups, said polymer having a glass transition temperature of at least 30°C; and

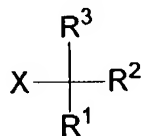
(2) a crosslinking agent having functional groups reactive with the functional groups of component (1),

said crosslinking agent comprising an ungelled reaction product of the following reactants:

(a) at least one aminoplast resin; and

(b) a compound selected from at least one of

(i) compounds having the following structure (I):



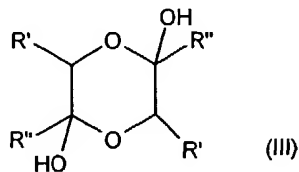
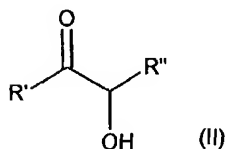
(I)

wherein X is aromatic; R¹, R², and R³ can be the same or different and each independently represents H, (cyclo)alkyl having from 1 to 12 carbon atoms, aryl, alkaryl, aralkyl, or an active hydrogen-containing group,

provided that at least one of R¹, R², and R³ represents an active hydrogen-containing group which is reactive with the aminoplast resin (A);

(ii) compounds having the following structure (II) or

(III):



where R' and R'' are the same or different and each independently represents an aromatic group or an alkyl group having 1 to 12 carbon atoms; and

(iii) compounds different from (i) and (ii) and having a melting point of at least 80°C,

wherein the crosslinking agent has a glass transition temperature of at least 10°C and is essentially free of functional groups which are reactive with the aminoplast resin.

48. (Original) The curable powder coating composition of claim 47, wherein the polymer (1) is selected from the group consisting of acrylic polymers, polyester polymers, polyurethane polymers, polyepoxide polymers, polyether polymers, and mixtures thereof.

49. (Original) The curable powder coating composition of claim 47, wherein the polymer (1) comprises hydroxyl and/or carbamate functional groups.

50. (Original) The curable powder coating composition of claim 47, wherein the polymer (1) comprises epoxy and/or hydroxyl functional groups.

51. (Original) The curable powder coating composition of claim 47, wherein the polymer (1) is present in the composition in an amount ranging from 20 to 80 weight percent based on total weight of the composition.

52. (Original) The curable powder coating composition of claim 47, wherein the aminoplast resin (a) is or is derived from at least one crosslinking agent selected from glycoluril, aminotriazine, and benzoguanamine.

53. (Original) The curable powder coating composition of claim 52, wherein the aminoplast resin comprises an aminotriazine compound.

54. (Original) The curable powder coating composition of claim 53, wherein the aminotriazine compound comprises an (alkoxyalkyl) aminotriazine having one or less non-alkylated NH bond per triazine ring.

55. (Original) The curable powder coating composition of claim 54, wherein the (alkoxyalkyl) aminotriazine compound comprises an (methoxymethyl) aminotriazine compound.

56. (Original) The curable powder coating composition of claim 54, wherein the (alkoxyalkyl) aminotriazine compound has a degree of polymerization of 3.0 or less.

57. (Original) The curable powder coating composition of claim 52, wherein the aminoplast resin (a) comprises an alkoxylated aldehyde condensate of glycoluril.

58. (Original) The curable powder coating composition of claim 57, wherein the alkoxylated aldehyde condensate of glycoluril comprises tetramethoxy methylglycoluril.

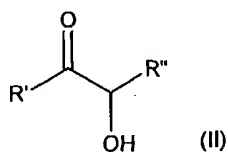
59. (Original) The curable powder coating composition of claim 47, wherein the compound (b) comprises at least one compound having the structure (I).

60. (Original) The curable powder coating composition of claim 59, wherein at least one of R^1 , R^2 , or R^3 represents an active hydrogen-containing group selected from hydroxyl, amino, amido, thiol, carboxyl, carbamate, urea, and mixtures thereof.

61. (Original) The curable powder coating composition of claim 59, wherein at least one of R^1 , R^2 , or R^3 represents a group comprising at least one hydroxyl group.

62. (Original) The curable powder coating composition of claim 47, wherein the compound (b) comprises at least one of compound (b) (ii).

63. (Original) The curable powder coating composition of claim 62, wherein the compound (b) comprises a hydroxyl functional group-containing compound having the following structure (II):



or dimer derivatives thereof, wherein R' and R'' are the same or different and each independently represents an (cyclo)alkyl group having 1 to 12 carbon atoms or an aromatic group.

64. (Original) The curable powder coating composition of claim 63, wherein one or both of R' and R'' represent aromatic groups.

65. (Original) The curable powder coating composition of claim 64, wherein the compound (b) comprises a compound selected from benzoin, hydroxycyclohexyl phenyl ketone and mixtures thereof.

66. (Original) The curable powder coating composition of claim 65, wherein the compound (b) comprises benzoin.

67. (Original) The curable powder coating composition of claim 65, wherein the compound (b) comprises hydroxycyclohexyl phenyl ketone.

68. (Original) The curable powder coating composition of claim 47, wherein compound (b) comprises a compound selected from benzoin, isoborneol, triphenylmethanol, N-tert-butylacrylamide, p-acetophenetidide, and mixtures thereof.

69. (Original) The curable powder coating composition of claim 47, wherein the compound (b) (iii) comprises at least one compound selected from borneol, norborneol, isborneol, 5-norbornen-2-ol, 1-adamantanemethanol, 1-adamantanol, and 2-methyl-2-adamantanol.

70. (Original) The curable powder coating composition of claim 69, wherein the compound (b) comprises isborneol.

71. (Original) The curable powder coating composition of claim 47, wherein compound (b) comprises at least one compound selected from benzyl alcohol, benzoin, isborneol, and mixtures thereof.

72. (Original) The curable powder coating composition of claim 47, wherein the crosslinking agent (2) is present in an amount ranging from 5 to 95 percent by weight based on total weight of the composition.

73. (Original) The curable powder coating composition of claim 48 comprising the following components:

(1) a hydroxyl functional group-containing polymer having a glass transition temperature of at least 30°C; and

(2) a crosslinking agent having functional groups reactive with the hydroxyl functional groups of component (1), said crosslinking agent comprising an ungelled reaction product of the following reactants:

(a) at least one aminoplast resin comprising (alkoxyalkyl)aminotriazine having one or less non-alkylated NH bond per triazine ring; and

(b) at least one compound selected from benzoin, isborneol, benzyl alcohol, and mixtures thereof,

wherein said crosslinking agent has a glass transition temperature of at least 10°C. and is essentially free of functional groups which are reactive with aminoplast resin.

74. (Original) The curable powder coating composition of claim 48 comprising a film-forming, solid particulate mixture of the following components:

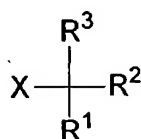
- (1) a polymer containing reactive epoxy functional groups, said polymer having a glass transition temperature of at least 30°C; and
- (2) a crosslinking agent comprising an ungelled reaction product of the following reactants:
 - (a) at least one aminoplast resin comprising (alkoxyalkyl)aminotriazine having one or less non-alkylated NH bond per triazine ring;
 - (b) at least one compound selected from benzoin, isoborneol, benzyl alcohol, and mixtures thereof, wherein said crosslinking agent has a glass transition temperature of at least 10°C. and is essentially free of functional groups which are reactive with aminoplast resin; and
- (3) a crosslinking agent having carboxylic acid functional groups reactive with the epoxy groups of (1).

75. (Original) A multilayer composite coating composition comprising a base coat deposited from a film-forming coating base coating composition and a top coat over at least a portion of the base coat deposited from a curable powder top coating composition comprising a solid particulate film-forming mixture of the following components:

- (1) a polymer containing reactive functional groups, said polymer having a glass transition temperature of at least 30°C; and
- (2) a crosslinking agent having functional groups reactive with the functional groups of the polymer (1), said crosslinking agent comprising an ungelled reaction product of the following reactants:

(a) at least one aminoplast resin; and
 (b) at least one compound having active hydrogen-containing groups reactive with aminoplast resin (a), said compound selected from at least one of:

(i) compounds having the following structure (I):



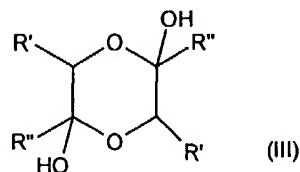
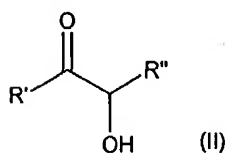
(I)

wherein X is aromatic; R¹, R², and R³ can be the same or different and each independently represents H, (cyclo)alkyl having from 1 to 12 carbon atoms, aryl, alkaryl, aralkyl, or an active hydrogen-containing group,

provided that at least one of R¹, R², and R³ represents an active hydrogen-containing group which is reactive with the aminoplast resin (A);

(ii) compounds having the following structure (II) or

(III):



where R' and R'' are the same or different and each independently represents an aromatic group or an alkyl group having 1 to 12 carbon atoms; and

(iii) compounds different from (i) and (ii) and having a melting point of at least 80°C,

wherein said crosslinking agent has a glass transition temperature of at least 10°C. and is essentially free of functional groups which are reactive with aminoplast resin.

76. (Original) A substrate coated with the powder coating composition of claim 47.

77. (Original) A substrate coated with the multilayer composite coating composition of claim 75.